

### Norlite CPT Plan Comments from DEC and EPA

From Hans Buenning (email date August 15, 2017 2:58 PM):

In the EPA/NYSDEC June 16, 2017 comment letter, EPA made note (Comment #2) that the chlorine feed rate in the May 19, 2017 Kiln 1 Supplemental CPT Plan (92.6 lb/hr) was not consistent with the value during Condition 3 of the 2015 CPT for Kiln 2 (84.7 lb/hr). In the letter, EPA stated that Norlite could conduct the Kiln 1 CPT at a higher chlorine feed rate, but the two kilns would then have different OPLs. Norlite's July 30, 2017 response letter stated, "[t]he revised plan will reflect the target chlorine rate of 84.7 lb/hr." However, Table 5-1 of the August 11, 2017 CPT Plan lists the target chlorine feed rate at 96.8 lb/hr. This is the same chlorine feed rate during Condition 2 of the 2015 CPT for Kiln 2.

Since no other test conditions from Condition 2 of the Kiln 2 2015 CPT are being applied to the upcoming Kiln 1 CPT, and the July 30 2017 letter indicated the targeted rate would be 84.7 lb/hr, I wanted to make sure this was not mistake in Table 5-1 of the August 11, 2017 CPT Plan. Again, there is no reason Norlite cannot test at the chlorine feed rate of 96.8 lb/hr, but the two kilns will then have different OPLs for this parameter. This will also potential complicate the approval of any future test waiver requests.

Norlite's Response: via email dated August 21, 2017 2:26 PM

Just a quick note to say that Norlite is prepared for separate OPLs based on the outcome of the CPT on Kiln 1. Pending what the values are, we may choose to perform a supplemental CPT during the CfPT of Kiln 2 to make the OPLs similar again. Thanks for sharing your thoughts.

From Denise Prunier (email date August 16, 2017 11:25 AM)

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Norlite's Response:

Table 2-1: revised

Revised Section: 2.2.1.8 and 2.2.1.9.

From Hans Buenning (email date August 31, 2017 9:38 AM):

EPA Region 2's Edison office has begun reviewing the revised CPT Test Plan and one question that has been raised so far is that we cannot readily find a description of how natural gas use will be quantified, measured, and recorded during the test. This was requested as part of comment #5 in our June 2017 letter. Can you point us to that description, if it is in the plan, or address the comment?

Norlite's Response: Added additional language in Section 3.3.1, 3.3.3 and 3.3.4 of the CPT plan

Section 3.3.4

Natural gas is also used to maintain the main burner pilot. The pilot flame nozzle is directly below the main fuel nozzle and serves to keep the main burner flame lit. The natural gas input to the kiln during the test is minor will not contribute any measureable hazardous constituents to the system. Natural gas usage is monitored via a thermal mass flow Fluid Components International (FCI) Unit that monitors the gas flow using the thermal dispersion technology using the differential temperature and differential resistance. All measured data is conveyed to the Data Acquisition System (DAS) at a frequency of every second using a programmable logic control (PLC). The thermal input from the natural gas pilot will be presented in the report.

The fuel oil and used oil flow meters are made by Micro Motion Coriolis mass flow meters. Flow is measured on the principle of motion mechanics. The continuous readings from the flow meters are connected to the DCS in "control loops" with common wiring, electrical signal transmitters, input/output devices and related programmable logic. The PLCs are designed in such a way that it can sense and verify that various components of the process and the process are operating as required. All measured data is conveyed to the DAS at a frequency of every second using PLCs.

From Hans Buenning (EPA comments email date September 6, 2017 3:37 PM):

1. In Appendix A of the Protocol, Quality Assurance Project Plan, Section 2.3 Regulatory Oversight, please delete the text which reads, "Agency staff will review and approve all documents associated with this project, will provide oversight of the field."

Norlite's Response: Section 2.3 of the QAPP (Appendix A)

~~Deleted: Agency staff will review and approve all documents associated with this project, will provide oversight of the field program.~~

2. Section 3.2.1 of the Protocol provides that, "A micromotion doppler flow meter is used to continuously monitor the fuel [liquid low-grade fuel] usage rate." Section 3.3.1 of the Protocol provides that, "The feedrate [for the raw shale] is measured by a scale in the feed tunnel that sends data to the programmable logic controller." However, the Protocol needs to provide detailed information on how the individual feed streams into each kiln are quantified, measured, recorded, and the frequency of such measurements and recording. The feed streams include liquid low grade fuel, shale, natural gas, fuel oils, used oil, and process vent streams. The test report also shall include all such measurement records.

#### Section 3.3.1

Norlite monitors the feed rate using an 'Accurate dry material feeder model WF1500'. The feed rate is measured by a calibrated scale in weight per hour and recorded using the programmable logic controller system. Data points are collected at a rate of once per minute and are part of the kiln data acquisition network.

#### Section 3.3.3

These vent streams gases are not monitored as they are in trace quantities. However, the vent lines are monitored with inline four gas meters for safety purposes.

LLGF addressed in 3.2.1

Shale addressed in 3.3.1

Natural gas addressed in 3.3.4

Fuel oils addressed in 3.3.4

Process vents addressed in 3.3.3

3. The Protocol has errors and omissions in meeting all applicable test requirements and in conducting the performance tests in accordance with the specified testing methods. It is imperative that Norlite rectify these and any other errors and omissions which might exist in the Protocol. The errors and omissions include but are not limited to the following:

A. The performance testing requirements in 40 CFR 63.1207(g) has not been included in the Protocol. For example, 40 CFR 63.1207(g)(1)(i)(C) requires that Norlite “must conduct the following tests when the particulate matter control device undergoes its normal (or more frequent) cleaning cycle: The particulate matter, semivolatile metal, and low volatile metal performance tests; and the dioxin/furan and mercury performance tests if activated carbon injection or a carbon bed is used.” Norlite needs to provide operating information on its baghouse and baghouse cleaning cycle. Norlite also shall include baghouse operations data, in addition to baghouse inlet temperature, and baghouse cleaning cycle data during the test into the test report.

Norlite’s Response: Added additional language in Section 5.2 of the CPT plan

The kiln will be operated under reasonable worst-case conditions to generate higher than normal emissions to demonstrate that even under stressed conditions, the kiln’s emissions are below the regulatory limits. Pursuant to 40 CFR 63.1207(g)(1), chlorine content in the LLGF will be normal or higher during the PCDD/PCDF test runs (Test Condition 1). Based on fuel data from calendar year 2016, Norlite will ensure that the chlorine concentration (measured as total halogens) will be approximately 1.0 percent on a weight basis. Ash content will be normal or higher during the semivolatile metal and low volatile metals test runs (Test Condition 2). Based on fuel data from calendar year 2016, Norlite will ensure that the ash concentration will be approximately 1.7 percent on a weight basis. The baghouse pulse cycle will be maintained at its normal rate throughout the particulate matter, semivolatile metals and low volatile metals test runs (Test Condition 2). The chlorine and ash content results will be reported with the fuel analysis in the test report. The baghouse pulse cycle will be included with the operational data in the test report.

B. The information provided in the Protocol (e.g., Method 26A (PM / HCl / Cl<sub>2</sub>) Recovery Schematic) regarding how Norlite intends to conduct emissions sampling using EPA Test Method 26A (also referred to as Reference Method 26A) is missing the procedure whereby a certain amount of sodium thiosulfate is added to Container No. 4 (Alkaline Impinger Catch for Halogen and Moisture Determination). See Section 8.2.4 of Test Method 26A. Since the amount of sodium thiosulfate to be added depends on the concentration of halogen anticipated in the stack gas, Norlite must provide in the Protocol an appropriate estimate of the amount of sodium thiosulfate to be added. Norlite also must ensure and shall provide documentation that this and all other applicable test method procedures are properly conducted.

Norlite's Response: Added additional language in Section 7.2.3 of the QAPP (Appendix A)

The sodium hydroxide impinger samples are treated with sodium thiosulfate in the laboratory, the pH of the solution is adjusted to >9 by adding NaOH (10N) drop wise. The samples is treated with sodium thiosulfate by adding 20 µL sodium thiosulfate (1.0N). If the final dilution required exceeds 500, the sample is re-prepared by adding 20 µL sodium thiosulfate (1.0N) for each 500-fold dilution.